ABSTRACT

An MRAM is provided that minimizes the limits in MRAM density imposed by utilization of an isolation or select device in each memory cell. In addition, methods are provided for reading an MTJ in a ganged memory cell of the MRAM. The method includes determining an electrical value that is at least partially associated with a resistance of a ganged memory cell of the MRAM. The MTJ in the ganged memory cell is toggled and a second electrical value, which is at least partially associated with the resistance of the ganged memory cell, is determined after toggling the MTJ. Once the electrical value prior to the toggling and after the toggling is determined, the difference between the two electrical values is analyzed to determine the value of the MTJ.